

# A very extended filamentary nebula in the Galaxy and its influence on the distribution and the gas motion

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## Introduction

The neutral hydrogen distribution and motion were studied in details with the RATAN-600 in a very extended galactic region. This region is located in Scorpius-Ophiuchus including the Scorpius OB-2 association, several nebulae, and the HII filamentary structures around them. The Local Bubble displays in the same direction. The model of the HI behaviour is not a simple expanding shell. The HII filaments of different size determine the neutral hydrogen distribution and motion there. The details of this combined study will be given in the communication.

## Description of the problems

Very prominent object containing the S1 and S7 nebulae and a system of HII filaments which seems to go out of them has the appearance of a spiral galaxy (Sivan, 1974). The object is embedded into its own neutral hydrogen. The character of the HII and HI coexistence puts several problems unsolved up to now. Just in this direction the Local Bubble is situated. As was shown by Bystrova (1979) this is not a simple model of an expanding HI shell. The RATAN-600 observations added to our "Pulkovo Sky Survey in the interstellar neutral Hydrogen Radio line" many other details and revealed problems. Some of them are the following.

The HII filaments determine not only the disposition of HI but the behaviour of neutral gas, its kinematics on the surfaces dividing both types of gas remains unknown. This relates to both scales of filaments: about ten degrees and less than one degree. The sequence of events at the formation of this object, the nature of the S7 nebula which allows to exist the HI signals between the filaments the nebula consists of these and other things are barely known. Inclusion of this object into the Key Program in ESO (Brown, 1996) would help to understand its nature from optical observations. The study of interstellar neutral hydrogen in the 21 cm radio line with the RATAN-600 almost completed. These high spatial resolution data give much additional information which will be described in the communication.

## Conclusion

This mysterious object was put to the disposal of the astronomers by Dr. J.-P. Sivan 25 years ago. But more problems than results remain after all. It is quite possible that the combined optical and radio studies will clarify at least some of the problems described above.

## References

- Sivan J.-P., 1974, *Astron. Astrophys. Suppl.*, 16, 163
- Bystrova N.V., 1979, *Izv. SAO*, 11, 236
- Brown A., 1996, Ph.D. Thesis, Leiden